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EXHAUST EMISSIONS FROM A PASSENGER CAR EQUIPPED WITH THE "BIAP ELECTRONIC IGNITION UNIT"

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National Air Pollution Control Administration
Ann Arbor, Michigan

September 1970

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15. Supplementary Notes

16. Abstracts

The exhaust emission characteristics of the Biap device on a used vehicle were studied as part of an evaluation of retro-fit devices. The Biap device is attached to both sides of the coil on a 1963 Ford Galaxie with a 289 cu. in. engine and automatic transmission. This car was also equipped with the Ford retro-fit kit. The following tests were conducted: (1) a closed constant volume sampling technique using 9 repeats of the 1970 Federal emissions tests cycle (CVS); (2) a closed constant volume sampling technique using the LA4-S3 driving schedule as specified for 1972 and later testing. Bag samples were analyzed for carbon monoxide, carbon dioxide, hydrocarbons, and nitrogen oxides. It was concluded from the results obtained, that the "Biap Electronic Ignition Unit" has no positive effect on exhaust emission rates when evaluated using the constant volume sampling technique.

17. Key Words and Document Analysis. 17a. Descriptors

Air pollution
Exhaust emissions
Automobiles
Tests
Air pollution control equipment
Sampling
Carbon monoxide
Carbon dioxide
Hydrocarbons
Nitrogen oxides

17b. Identifiers/Open-Ended Terms

"Biap Electronic Ignition Unit"
Retrofit devices
Constant Volume Sampling Test (CVS)
LA4-S3 Driving Schedule

17c. COSATI Field/Group 13B

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Device Tested

Tne exhaust emission characteristics of the Biap device on a used vehicle were desired for use as part of an evaluation of retro-fit devices. The Biap device is attached to both sides of the coil according to the manufacturer's recommendations on a 1963 Ford Galaxie with a 289 cubic inch engine and automatic transmission. This car was also equipped with the Ford retro-fit kit and extensive background data on emission levels was available.

Test Procedure

The following tests were conducted:

1. A closed constant volume sampling technique using 9 repeats of the 1970 Federal emissions test cycle. (CVS)

2. A closed constant volume sampling technique using the LA4-S3 driving schedule as specified for 1972 and later testing.

Closed cycle data were taken using a constant volume sampling technique. Bag samples were analyzed using non-dispersive infrared analysis for carbon monoxide and carbon dioxide with hydrocarbons measured using a flame ionization detector. The Whittaker "NOx Box" was used for determination of oxides of nitrogen in the CVS sample.

Emission Results

The data shown in Table I compare tests run both with and without the Biap device.

Using the 9 CVS procedure increases in hydrocarbons, carbon monoxide, and oxides of nitrogen were measured with the device; with the 1972 FTP increases in carbon monoxide and oxides of nitrogen and a decrease in hydrocarbons were found.

Because of the lack of significant change it appears that the Biap device has no positive effect on exhaust emissions.

Conclusions

The "Biap Electronic Ignition Unit" has no positive effect on exhaust emission rates when evaluated using the constant volume sampling technique.

Table I

1963 Ford Galaxie

9 Cycle CVS	HC gpm	CO gpm	NO gpm
Without device	7.06	66.03	2.21
With Biap	7.29	72.61	3.32
1972 FTP			
Without device	6.51	93.81	2.14
With Biap	6.32	109.08	3.33